

REMARKS

After entry of this Amendment, the pending claims are: claims 1, 2, 4-8 and 12-17. The Office Action dated August 11, 2008 has been carefully considered. Claims 3 and 9-11 have been canceled. Claims 1, 2, 4-8 and 12-17 have been amended. Claims 2, 4-8 and 12-17 have been amended to place them more in line with customary U.S. patent practice. Support for the amendments to claim 1 can be found throughout the Specification and Drawings and specifically in paragraph No. 31 and Fig. Nos. 1 and 2. Accordingly, no new matter has been added. Reconsideration and allowance of the pending claims in view of the above Amendments and the following remarks is respectfully requested.

In the Office Action dated August 11, 2008, the Examiner:

- rejected claims 1-17 under 35 U.S.C. 112, second paragraph, as being indefinite to particularly point out and distinctly claim the subject matter which Applicants regard as the invention;
- rejected claims 1-7, 9-11, 13 and 15 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,759,766 to Buettner-Janz *et al.* ("Buettner-Janz");
- rejected claims 8 and 12 under 35 U.S.C. 103(a) as being unpatentable over Buettner-Janz;
- rejected claim 14 under 35 U.S.C. 103(a) as being unpatentable over Buettner-Janz in view of U.S. Patent No. 5,534,030 to Navarro *et al.* ("Navarro"); and
- rejected claim 17 under 35 U.S.C. 103(a) as being unpatentable over Buettner-Janz in view of U.S. Patent No. 5,879,387 to Jones *et al.* ("Jones").

35 U.S.C. 112, SECOND PARAGRAPH

Claims 1-17 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, independent claim 1 was rejected for reciting “a first concave inner surface.” In an effort to expedite prosecution of the present application, independent claim 1 has been amended without prejudice to recite “a first curved inner surface.” As such, it is believed that the Examiner’s rejection of independent claim 1 under 35 U.S.C. 112, second paragraph, has been overcome. Withdrawal of this rejection is respectfully requested.

In addition, dependent claim 4 was rejected for reciting “the slide surface (7) is spherical, ellipsoidal or barrel-like.” Dependent claim 4 was also rejected for reciting “point like rest.” In an effort to expedite prosecution of the present application, claim 4 has been amended without prejudice to recite “wherein the first curved inner surface has a first radius of curvature and the first external convex slide surface has a second radius of curvature, the first radius of curvature being different than the second radius of curvature and whereby the external convex slide surface of the joint element and the first curved inner surface contact one another via line contact.” As such, it is believed that the Examiner’s rejections of claim 4 under 35 U.S.C. 112, second paragraph, have been overcome. Withdrawal of these rejections is respectfully requested.

Dependent claim 5 was rejected for reciting “wherein the radii of curvature of at least one of the slide surfaces (9; 10) at the convex joint element (4) and at least one of the concave inner surfaces (7; 8) of the terminal parts (2; 3) are different.” Dependent claim 5 was also rejected for reciting “liner rest.”

In an effort to expedite prosecution of the present application, claim 5 has been amended without prejudice to recite “wherein at least one of the slide surfaces has a first radius of curvature and at least one of the curved inner surfaces of the terminal parts has a second radius of curvature, the first radius of curvature being different than the second radius of curvature whereby the convex joint element and at least one of the curved inner surfaces contact one another via line contact.” As such, it is believed that the Examiner’s rejections of claim 5 under 35 U.S.C. 112, second paragraph, have been overcome. Withdrawal of these rejections is respectfully requested.

Dependent claims 9 and 10 were rejected for reciting “rotationally symmetrical external surface (11) ...” In addition, dependent claim 10 was rejected for reciting “rotationally symmetrical external surface (11) is a conical external surface.” Moreover, claims 9 and 10 were rejected for providing insufficient antecedent basis for “the rotationally symmetrical external surface (11) ...” As claims 9 and 10 have been canceled, it is believed that these rejections are now moot. Withdrawal of these rejections is respectfully requested.

Dependent claim 15 was rejected for reciting “the conical external surface (16).” In addition, dependent claim 15 was rejected for providing insufficient antecedent basis for “the conical external surface (16).” In an effort to expedite prosecution of the present application, claim 15 has been amended without prejudice to recite “wherein: at least one of the terminal parts comprises a first rotation-restricting stop shortening a front side of the intervertebral implant parallel to the central axis about the first axis of rotation at an angle of rotation γ between 5 and 15 degrees; and at least one of the terminal parts includes a second rotation-restricting stop shortening a rear side of the intervertebral

implant parallel to the central axis about the first axis of rotation at an angle of rotation β between 2 and 15 degrees.” As such, it is believed that the Examiner’s rejections of claim 15 under 35 U.S.C. 112, second paragraph, have been overcome. Withdrawal of these rejections is respectfully requested.

Dependent claim 16 was rejected for reciting “further comprising a third stop restricting the rotation about the second axis of rotation at a maximum angle of rotation δ between ± 0.5 degrees and ± 10 degrees.” In an effort to expedite prosecution of the present application, claim 16 has been amended without prejudice to recite “further comprising a third rotation-restricting stop restricting the rotation about the second axis of rotation at a maximum angle of rotation δ between -0.5 degrees and $+10$ degrees.” As such, it is believed that the Examiner’s rejection of claim 16 under 35 U.S.C. 112, second paragraph, has been overcome. Withdrawal of this rejection is respectfully requested.

INDEPENDENT CLAIM 1

Independent claim 1 and claims 2-7, 9-11, 13 and 15, which are dependent therefrom, have been rejected as being anticipated by Buettner-Janz. Dependent claims 8 and 12 have been rejected as being unpatentable over Buettner-Janz. Dependent claim 14 has been rejected as being unpatentable over Buettner-Janz in view of Navarro. Dependent claim 17 has been rejected as being unpatentable over Buettner-Janz in view of Jones. With respect to claims 3 and 9-11, which have been canceled, these rejections are believed to be moot. Applicants respectfully traverse the remaining rejections with respect to the remaining, above-listed claims, as amended.

Referring to Figs. 10 and 11, Buettner-Janz discloses an intervertebral disc endoprosthesis including first and second end plates 11 and a spacing piece 12. The spacing piece 12 having top and

bottom surfaces. The first end plate having a first surface for contacting the top surface of the spacing piece such that the top surface and the first surface define a first cylinder-shaped movement surface. The second end plate having a second surface for contacting the bottom surface of the spacing piece such that the bottom surface and the second surface define a second cylinder-shape movement surface. The first and second cylinder-shape movement surfaces being rotationally-offset 90 degrees with respect to each other about a central axis passing through the spacing piece and the end plates.

Applicants respectfully submit that Buettner-Janz does not disclose each and every limitation of independent claim 1. Amended claim 1 is directed to an intervertebral implant having a central axis substantially parallel to or coaxial with an axis of a spinal column and recites as follows:

an upper and a lower terminal part each fitted with an outermost surface configured transversely to the central axis, said upper terminal part having a first curved inner surface and said lower terminal part having a second curved inner surface, said first and second curved surfaces being opposite one another; and a joint element configured between the terminal parts and resting in a sliding manner against the curved inner surfaces of the upper and lower terminal parts, the joint element including first and second external convex slide surfaces, the first slide surface contacting the first curved inner surface of the upper terminal part, the second slide surface contacting the second curved inner surface of the lower terminal part, **the first concave inner surface and the first slide surface forming a first joint rotatable about a first axis of rotation, the first axis of rotation being perpendicular to the central axis when in an initial position, the second curved inner surface and the second slide surface forming a second joint rotatable about a second axis of rotation, the second axis of rotation intersecting the central axis at an acute angle α , the second axis of rotation being spaced apart from the first axis of rotation by a distance A as measured along the central axis.** (Emphasis added).

Applicants respectfully submit that there is no disclosure, teaching, or suggestion in Buettner-Janz of an intervertebral implant including an upper terminal part having a first curved inner surface, a lower terminal part having a second curved inner surface, and a joint element configured between the

upper and lower terminal parts and resting in a sliding manner against the curved inner surfaces of the upper and lower terminal parts. The joint element including first and second external convex slide surfaces, the first slide surface contacting the first curved inner surface of the upper terminal part, the second slide surface contacting the second curved inner surface of the lower terminal part, wherein the first concave inner surface and the first slide surface form a first joint rotatable about a first axis of rotation, the first axis of rotation being perpendicular to the central axis when in an initial position. The second curved inner surface and the second slide surface form a second joint rotatable about a second axis of rotation, the second axis of rotation intersecting the central axis at an acute angle α . The second axis of rotation being spaced apart from the first axis of rotation by a distance A as measured along the central axis.

Specifically, Buettner-Janz, at the most, discloses an intervertebral disc endoprosthesis including first and second end plates 11 and a spacing piece 12. The spacing piece 12 having top and bottom surfaces for contacting the first and second end plates, respectively, such that a first cylinder-shaped movement surface is defined between the first end plate and the top surface of the spacing piece and a second cylinder-shaped movement surface is defined between the second end plate and the bottom surface of the spacing piece. The first and second cylinder-shaped movement surfaces being rotationally-offset by 90 degrees with respect to one another.

Buettner-Janz does not disclose, teach or suggest a first joint rotatable about a first axis of rotation wherein the first axis of rotation is perpendicular to the central axis when in an initial position and a second joint rotatable about a second axis of rotation wherein the second axis of rotation

intersects the central axis at an acute angle α such that the second axis of rotation is spaced apart from the first axis of rotation by a distance A as measured along the central axis.

Therefore, it is respectfully submitted that Buettner-Janz does not disclose, teach, or suggest all of the limitations of independent claim 1. Accordingly, Applicants respectfully submit that claim 1, as amended, is allowable over Buettner-Janz. Withdrawal of this rejection and allowance of independent claim 1 is respectfully requested.

Furthermore, as claims 2, 4-8 and 12-17 all depend from independent claim 1, it is submitted that these claims are equally allowable for at least this reason. Withdrawal of these rejections and allowance of claims 2, 4-8 and 12-17 is also respectfully requested.

With respect to claim 14 which was rejected under 35 U.S.C. 103(a) as being unpatentable over Buettner-Janz in view of Navarro, it is respectfully submitted that Navarro does not overcome the shortcomings of Buettner-Janz. Navarro was cited for the proposition that it would be obvious to incorporate an external surface of the implant comprising a titanium grid. Without addressing the merits of this argument and/or the combination, it is respectfully submitted that, for at least the above-identified reason, neither Buettner-Janz nor Navarro, either alone or in combination, disclose, teach or suggest all of the limitations of dependent claim 14 and, specifically, the above-listed features of claim 1. Thus, it is respectfully submitted that dependent claim 14 is allowable over Buettner-Janz and Navarro. Withdrawal of this rejection and allowance of dependent claim 14 is respectfully requested.

With respect to claim 17 which were rejected under 35 U.S.C. 103(a) as being unpatentable over Buettner-Janz in view of Jones, it is respectfully submitted that Jones does not overcome the shortcomings of Buettner-Janz. Jones was cited for the proposition that it would be obvious to make at least one of the terminal parts from a three-element part including a cover plate, a joint pan and an elastic spacer. Without addressing the merits of this argument and/or the combination, it is respectfully submitted that, for at least the above-identified reason, neither Buettner-Janz nor Jones, either alone or in combination, disclose, teach or suggest all of the limitations of dependent claim 17 and, specifically, the above-listed features of claim 1. Thus, it is respectfully submitted that dependent claim 17 is allowable over Buettner-Janz and Jones. Withdrawal of this rejection and allowance of dependent claim 17 is respectfully requested.

CONCLUSION

Based upon the above-listed amendments and remarks, Applicants respectfully submit that the present application, including claims 1, 2, 4-8 and 12-17, is in condition for allowance and such action is respectfully requested.

A fee of \$130.00 is believed due for this submission for the filing of a one month extension of time. The Commissioner is authorized to charge this and any other fee which may now or hereafter be due in this application to Deposit Account No. 19-4709.

In the event that there are any questions, or should additional information be required, please contact Applicants' attorney at the number listed below.

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Respectfully submitted,

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